English, Chris/STL

From: English, Chris/STL
Sent: April 19, 2004 1:09 PM
To: 'Nabil Fayoumi '; 'Sandra Bron'
Cc: Li, Ning/STL; Morris, Clair/STL; Haberl, Jeffrey/STL; 'Richard Williams'; 'Steve Smith'; 'Bruce Yare '; 'Richard Ashley '; 'Glen Kurowski '; 'Ken Bardo '
Subject: RE: Weekly Oversight Report for Week Ending April 16, 2004

Nabil and Sandy,

Please find attached a Weekly Summary Report for Site R at Sauget Area 2. Please let us know if you have any questions regarding this information.

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Thanks,

Chris

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Weekly Summary Report
USEPA Oversight, Sauget Area 2, Sauget, IL
WA No. 224-RXBF-05XX / Contract No. 68-W6-0025

Week Ending Friday April 16, 2004

This report summarizes the Interim Remedial Action (IRA) work conducted by Solutia and its contractors from April 12 through April 16, 2004 at Site R, Sauget Area 2. The current IRA fieldwork consists of barrier wall trenching and backfilling.

Contractors Onsite

Inquip Associates Inc. (barrier wall construction contractor)
PSI (geotechnical testing subcontractor)
Pangea (subcontractor to Inquip for site maintenance)
URS (primary consultant for Solutia)

Work Performed This Week

Work at the site continued with a crew of Inquip operators and laborers performing site and trench maintenance activities. Barrier wall excavation continued during the week with an approximate 115 feet length of trench excavated to Koehring trackhoe depth (70-80 feet below ground surface) on the east-west leg at the southernmost section of the barrier wall (near station 8+45). The second panel south of the box culvert location was excavated to bedrock depth. The third panel, which is about 28 feet south of the second panel, was excavated to 47 feet deep by the end of the week. Backfill materials were placed into the trench on four days of the week.

Groundwater Migration Control System (GMCS)

During the week, the river elevation decreased from approximately 395.22 feet above mean sea level (amsl) on April 12 to 387.11 ft amsl on April 16, 2004. As a result, the combined flow rate of the GMCS increased during the week, with a rate of 1,300 gallons per minute (gpm) on April 16, 2004. The extraction wells pumped according to flow rates as dictated by the lookup table consistently throughout the week.

The eight barrier wall piezometers, with four inside and the other four outside the barrier wall alignment, continued to monitor the groundwater water elevations adjacent to the barrier wall alignment. Table 1 shows the river and piezometer water elevations measured on April 16, 2004 (3:00 PM).

At areas where the barrier wall is in place or partially in place, the water elevations at the piezometers located east (hydraulically upgradient) of the barrier wall were generally within three feet higher than those at the piezometers located west (hydraulically downgradient) of the barrier wall for the week. This indicates that the pumping rates of the extraction wells were not sufficient to maintain the hydraulic control of onsite contaminated groundwater. This does not apply to locations where the barrier wall has not yet been installed. The water elevations in the two pairs of piezometers located at the north and south ends of Site R

(P1S/P1N and P4E/P4S) were similar. The maximum difference in elevations for these two pairs of wells was less than one half foot. This similarity in elevations at these locations is attributed to the absence of the barrier wall and the north-south alignment (perpendicular to general groundwater flow direction) of these piezometer pairs.

Piezometer P2E did not record water level elevations properly beginning on April 7, when the conduit and control wiring to the well was severed by a bulldozer in the backfill mixing area. Although a new transducer was placed into the well on April 12, similar problems continued until April 16, when another new transducer was installed to replace the previous one. Piezometer P4E, though repaired by URS by the close of the previous week, appeared to have problems measuring proper water elevations for the first four days of the week. The problem occurred while heavy equipment was operated nearby. Water level readings in this well appeared to normalize on April 16.

TABLE 1
River and Piezometer Water Elevations – April 16, 2004 (15:00 PM)

	Elevation (ft above mean sea level)
River Level	386.97
Piezometer 1S – inside wall (northern-most pair)	387.45
Piezometer 1N – outside wall (northern-most pair)	387.12
Piezometer 2E – inside wall (north-central pair)	386.02
Piezometer 2W – outside wall (north-central pair)	385.47
Piezometer 3E – inside wall (south-central pair)	387.17
Piezometer 3W – outside wall (south-central pair)	386.01
Piezometer 4E – inside wall (southern-most pair)	387.71
Piezometer 4W – outside wall (southern-most pair)	387.27

Stormwater

No stormwater activity took place this week.

Slurry Mixing

Approximately 25 tons of bentonite gel was used to mix slurry this week. The slurry, when pumped from the south holding pond to the panel excavation in the northwest corner of the site (south of the box culvert), was tested frequently to assess its viscosity and adjusted with a blending pump using water from the fire hydrant, as necessary. The viscosity of the slurry was measured using a Marsh funnel, with results generally meeting the specification.

Spoils Handling

During the week, spoils were transferred from the southern portion of the exclusion zone adjacent to the barrier wall trench to the temporary stockpile area on top of the landfill.

Barrier Wall Construction

Inquip continued excavation of the trench along the south arm of the barrier wall alignment (station 8+45) with a small trackhoe, the Koehring 1266 trackhoe, and the Liebherr 853 hydraulic clamshell rig. The mechanical clamshell, Liebherr 855, excavated the second panel (approximately 28 feet south of the box culvert) to the bedrock at 133 feet below ground surface. The third panel, which is located 28 feet south of the second panel, was excavated to 47 feet deep by the end of the week.

As of April 16, the open trench was approximately 1,315 feet in length along the barrier wall alignment from station 8+45 towards station 21+60 (please refer to Solutia's map for locations). In general, a small backhoe was used to excavate the first 20 feet, then the KH1266 trackhoe continued trenching up to 70-80 feet in depth, while the hydraulic clamshell rig was used subsequently to complete the excavation down to bedrock.

Fresh bentonite slurry was pumped into the second and third panels south of the box culvert location as needed to keep the excavation open. Slurry samples were collected from the top and the bottom of the trench daily; fresh and trench slurry samples were tested for viscosity, density (unit weight), filtrate loss, pH and sand content during the week.

All ten bottom trench slurry samples and two of the five top trench slurry samples exceeded the viscosity specification (with results between 105 and 187 seconds to pass through the Marsh Funnel; the specification is between 40 to 100 seconds). A letter regarding the slurry viscosity was submitted by Inquip's design consultant, Mueser Rutledge Consulting Engineers, to Inquip on February 18, 2004. The letter indicates that the higher viscosity readings should be accepted as long as 1) the readings can be attributed to sand content in the slurry; 2) excavation work agitates the slurry; and 3) the bottom of trench is cleaned before it is covered with backfill.

The viscosity results of fresh slurry samples were either slightly below or above the specification range on three days of the week. The results for density, filtrate loss, pH, and sand content in these samples generally met the specifications.

During the week, Inquip mixed and placed into the trench approximately 1,460 cubic yards of backfill material. Backfill operations occurred on four days this week. The backfill consists of spoils with the addition of approximately 15 percent of clay and one percent of bentonite (from trench slurry) in dry weight. The backfill was tested by PSI for slump, unit weight, and moisture content. All test results reviewed met the minimum requirements. Additional tests on the backfill, including permeability and gradation, were to be tested offsite by Inquip's contract laboratory.

The bottom of the trench at and ahead of the backfill toe was cleaned using the hydraulic clamshell rig prior to the backfill placement. Depth-to-bottom measurements were made every 10 linear feet of trench to ensure the bottom of the trench was at a consistent depth and on top of bedrock. These depth measurements were performed with the clamshell rig's instrumentation and confirmed in two locations manually with the downrigger (plumbob on wire).

This week, particular attention was paid to the cleaning of the backfill toe around the bend in the southern portion of the trench (around station 10+65). A "wedge" of soil had been left in place during the previous week to provide support in the event that the clamshell rig needed to cross the trench. During the week of April 16, the wedge of soil was removed without any apparent caving of sidewall material into the trench.

On each day when backfill was placed, two samples were collected by URS and PSI with a clam sampler from the top of the placed backfill, prior to commencing backfill placement on that day. These samples were visually checked to ensure that the backfill surface in the trench was clean and free of sand.

During the week, the trench depths were generally measured once at the end of the day. The afternoon trench depth measurements were made every 100 linear feet of trench, with 20-foot spacing of measurements on either side of the backfill toe. The trench depth measurements from April 16 (after the backfill placement into the trench) are shown in Table 2. The trench profile is depicted in Graph 1, and is compared to the trench depth profile measured end of the previous week (April 9). Graph 2 shows the overall progress of the barrier wall construction.

Other Activities

On the first two days of the week, approximately 120 truck loads of clean clay soil was brought onsite. The clay soil was used to fill the depression at the central portion of the exclusion zone caused by backfill mixing activities.

Pangea was onsite to conduct general site maintenance. The maintenance activities included dust control for access roads, silty fence repair, and cutting through the concrete road located at the north side of Site R to prepare for future barrier wall excavation.

Excavation near the potential "debris area of concern" on the east end of the barrier wall trench at the south portion of the site did not encountere any potentially contaminant-related debris.

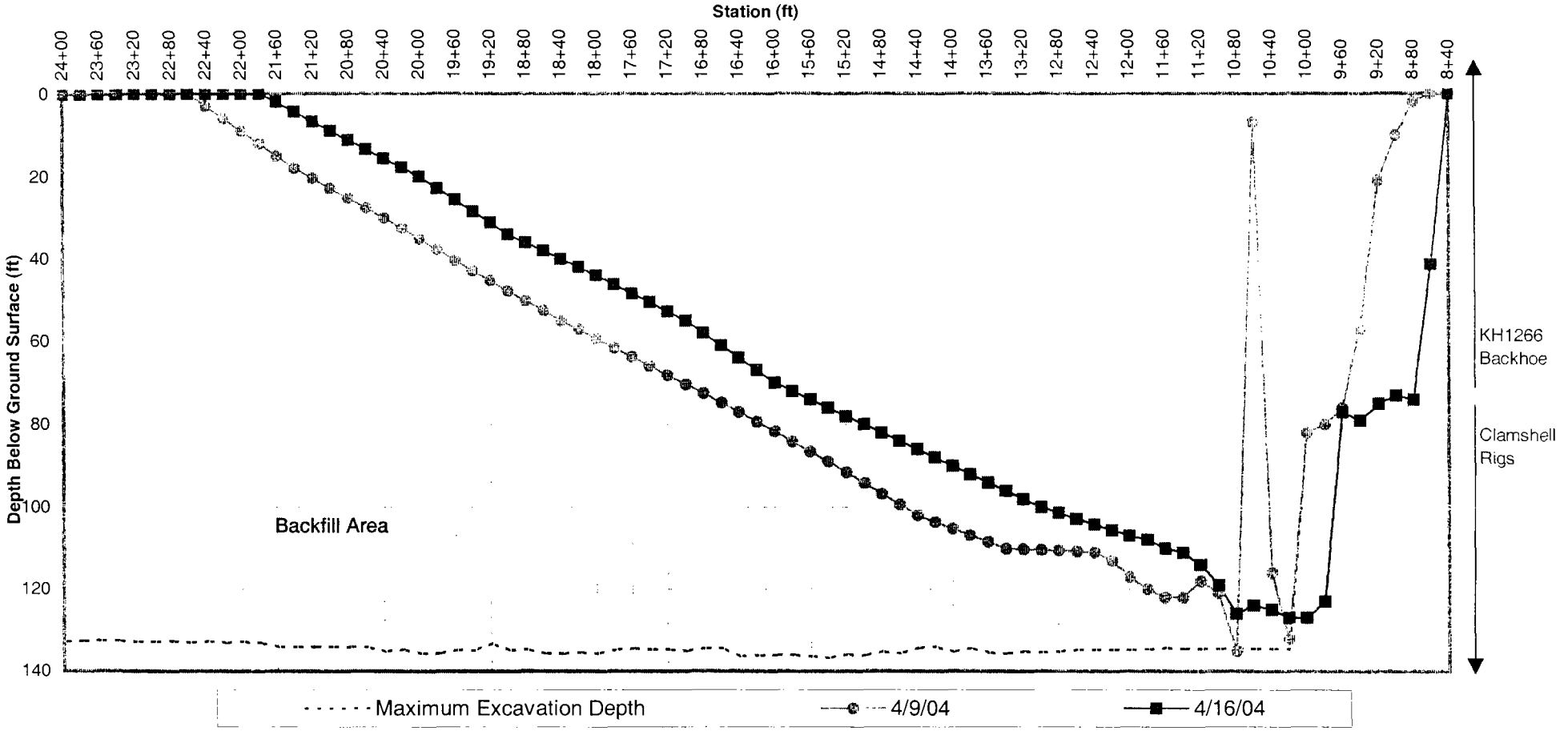
TABLE 2
Trench Profile (Downrigger Measurements) for the Barrier Wall Trench – April 16, 2004 (PM)

Station ID	Depth to bottom (ft below ground surface)
8+45	0
8+50	23
8+80	74
9+00	73
9+20	75
9+40	79
9+60	77
9+80	123
10+00	127
10+20	127
10+40	125
10+60	124
10+80	120
11+00	119
11+20	114

TABLE 2
Trench Profile (Downrigger Measurements) for the Barrier Wall Trench – April 16, 2004 (PM)

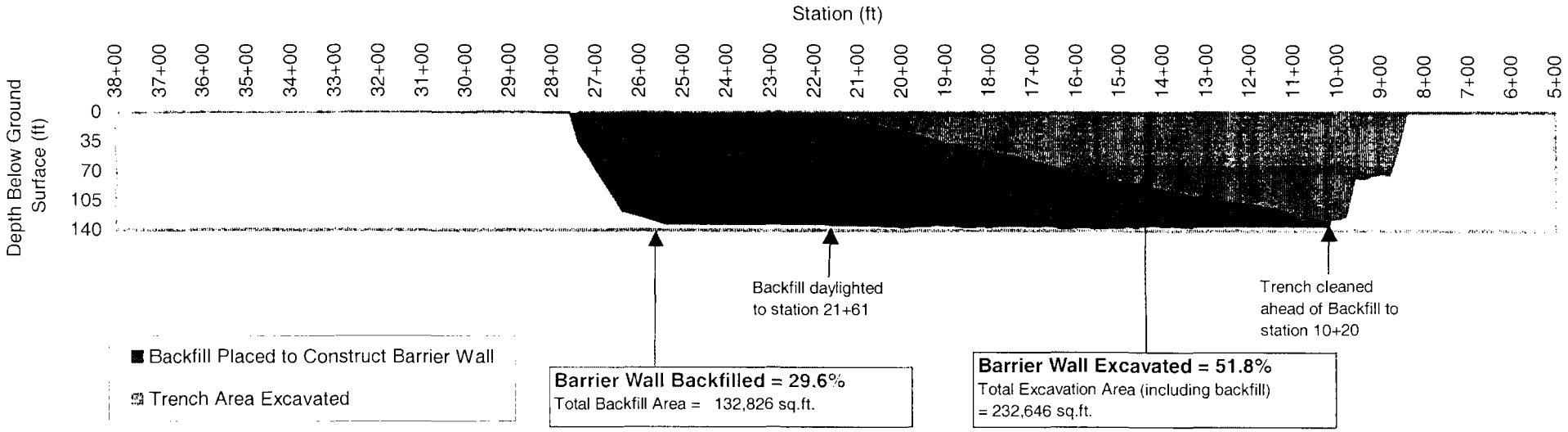
Station ID	Depth to bottom (ft below ground surface)
11+40	111
11+60	120
11+80	108
12+00	107
13+00	100
14+00	90
15+00	80
16+00	70
17+00	55
18+00	44
19+00	34
20+00	20
21+00	9
21+60	2
21+61	End of Trench / Daylighted Backfill

Graph 1 - Weekly Barrier Wall Construction Progress
April 12 to April 16, 2004



Note: Data plotted for the week through PM measurements on 4-9-04 and 4-16-04.
Some data points are interpolated between the available data points where trench depth measurements were read.

Graph 2 - Barrier Wall Construction Progress by April 16, 2004 (PM)



Note: Data plotted for week through PM measurements on 4-16-04.

Photo from April 12 through April 16, 2004:

Clean clay soil brought onsite to be mixed with backfill materials (April 13, 2004).